Trends in Natural Product Research – PSE Young Scientists' Meeting
Budapest, June 19th-21th, 2019

# SL-1

doi: 10.14232/tnpr.2019.sl1

## *In vitro* antioxidant and enzyme inhibitory properties, metabolomic profile and computational studies *Cistanche phelypaea* (L.)

Odeta Celaj[1*], Luísa Custódio[2], Adriano Mollica[4], Francesca Trampetti[2], Catarina Pereira[2], Gokhan Zengin[3], Brigida D'Abrosca[1], and Antonio Fiorentino[1]

[1] *Department of Environmental, Biological and Pharmaceutical Sciences and Technologies, University of Campania Luigi Vanvitelli, Caserta, Italy.*
[2] *Centre of Marine Sciences, Faculty of Sciences and Technology, University of Algarve, Faro, Portugal*
[3] *Science Faculty, Department of Biology, Selcuk University, Konya, Turkey*
[4] *Department of Pharmacy, University "G. d'Annunzio" of Chieti-Pescara, Chieti, Italy*

*E-mail: odeta.celaj@unicampania.it

*Cistanche phelypaea* L. is a chlorophyll-free obligate parasitic plant distributed in some arid and semi-arid regions. It is also an edible plant like other species of *Cistanche* genus composed by a variety of phenylethanoid glycosides (PhGs), iridoids, and lignans. These bioactive ingredients are used for treatment of a wide range of human disease [1-3], therefore in this study, ethyl acetate, acetone, ethanol and water extracts from flowers, stems and roots of *C. phelypaea* were appraise for *in vitro* antioxidant activity. Therefore, since the water extracts had the highest antioxidant capacity, they were further evaluated for enzymatic inhibition related with the onset of acetylcholinesterase and butyrylcholinesterase, type 2 diabetes mellitus and skin hyperpigmentation (tyrosinase).

The structural characterization of water extracts was performed by NMR (1D and 2D) analyses. The secondary metabolites present in *C. phelypaea* water extracts showed differences in each sections studied of this plant: in stems, PhGs and iridoids were detected, especially acteoside; in roots were detected essentially PhGs, mainly echinacoside and tubuloside A.

Finally, docking studies were performed on the identified compounds, and indicated this compound as a possible competitive inhibitor of glucosidase and tyrosinase.

Our results suggest that *C. phelypaea* is a promising source of biologically active compounds with health promoting properties for pharmaceutical applications.

### References

[1] Zhao S et al. *Recent Progress in Medicinal Plants* 2016; 43:427-456.
[2] Ma Z et al. *Analytical Letters* 2014; 47:2783-2794.
[3] Bougandoura A et al. *Fitoterapia* 2016; 109:248-253.